REMARKS/ARGUMENTS

Reconsideration of this application is requested. Claims 1-8 remain active in the case. Claims 1 and 5 have been amended to correct informalities. No new matter is introduced.

Claims 1-8 were rejected under 35 U.S.C. 102(e) /103(a) for reason of record that can be found on pages 2-7 in the Office action identified above, which is Part of Paper No./Mail Date 20050625.

Claim 1 was rejected under 35 U.S.C. 102(e) because of Ngo et al. (US 6818557). Ngo et al. teaches a method of forming SiC capped copper interconnects with reduced hillock formation and improved electromigration resistance. The method includes treating the exposed planarized surface of in-laid Cu with a plasma containing NH3 and N2, ramping up the introduction of trimethylsilane and then initiating deposition of a silicon carbide capping layer.

According to Ngo et al. (col. 5, lines 49-62), the exposed surface of the in-laid Cu is treated with soft NH3 plasma to reduce the copper oxide film, typically for 8 to 12 seconds. It is respectfully noted that after the soft NH3 plasma treatment, *the power is turned off* (col. 5, line 64). After the power is turned off, the introduction of N2 is discontinued, the pressure is reduced to 2 to 4 Torr, He is introduced at a flow rate of 320 to 480 sccm, e.g., 400 sccm, and the NH3 flow rate is increased to 286 to 402 sccm, e.g., 335 sccm, while maintaining the temperature at 335℃. After 5 to 7 seconds, TMS is gradually introduced into the chamber while maintaining the temperature of 335℃. The TMS flow rate is ramped up to a suitable deposition flow rate, as in a plurality of stages. For example, TMS may be introduced during a first stage until a flow rate of 32 to 48 sccm, e.g., 40 sccm, is achieved, as for about 5 seconds, followed by a second stage during which the TMS flow rate is increased to 96 to 144 sccm, e.g., 120 sccm, for about 5 seconds, after which the TMS flow rate is increased to 128 to 192 sccm, e.g., 160 sccm in 5 seconds. After the TMS has achieved a suitable flow rate, e.g., 160 sccm, *the RF*

power is again turned on, as at 240 to 360 watts, thereby generating a plasma and depositing a capping layer of silicon carbide on the treated Cu surface.

Ngo et al. merely discloses a multi-stage TMS flow regulating method prior to the PECVD silicon carbide deposition. Applicants believe that Ngo et al. teaches away from that "*reacting said treated surface of said copper or copper alloy with trimethylsilane or tertramethylsilane under plasma enhanced chemical vapor deposition (PECVD) conditions*", as required by claim 1. It is respectively noted that according to the present application, the pre-treatment process in the PECVD tool may be performed by *supplying trimethylsilane (or tertramethylsilane) gas and initiating plasma simultaneously* (see paragraph 21). Accordingly, reconsideration of the amended claim 1 is politely requested.

As claims 2-4 are dependent upon claim 1, they should be allowable if claim 1 is allowed. Reconsideration of claims 2-4 is politely requested.

Regarding claim 5, Applicants believe that none of the prior art references teaches "*reacting said treated surface of said copper or copper alloy with trimethylsilane or tertramethylsilane under plasma enhanced chemical vapor deposition (PECVD) conditions*", as required by claim 5. Ngo et al. merely discloses a multi-stage TMS flow regulating method prior to the PECVD silicon carbide deposition. According to Ngo et al., the surface of the inlaid copper interconnect is *not treated under plasma conditions* prior to the SiC PECVD deposition (col. 5, lines 49 to col. 6, lines 1-19). Reconsideration of the amended claim 5 is politely requested.

As claims 6-8 are dependent upon claim 5, they should be allowable if claim 5 is allowed. Reconsideration of claims 6-8 is politely requested. Applicants respectfully request that a timely Notice of Allowance be issued in this case.

Sincerely yours,

Winston Hsu Date: September 07, 2005

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